ing or not? I have seen so many marvelous things that I am ready to believe anything, but I passed the incident on to the boys: How Rachel, the cow, stood weeping for her child, while the great, big, Texas tears ran down the gulches in her cheeks.

The boys were divided into Indian tribes. The Senecas, Bear Cats, Cherokees, Delawares, Mohawks and Shawnees. Away back in the woods, in a dense growth of trees, these tribes have a common council fire. A high stockade is arranged in a circle of perhaps a hundred feet in diameter with a big wood fire blazing up in the center, and seats around the edge. There is one throne-seat for the principal or chief. On Monday night we had a council fire and discussed Indians and Indian things. That day we had gone to Clarksburg and been on the ground where Jesse Hughes, in the fort at the mouth of Elk Creek, had seen a boy about to go up the hill to get a turkey gobbling in the woods. He induced the boy to stay in and going up around, Jesse Hughes came to about where the Waldo Hotel now stands and there in a cover made by sprouts growing up around a chestnut stump, he saw an Indian peer out and gobble like a turkey. So Hughes laid him out and took the scalp back to the boy

The next morning was Tuesday. We woke early and the day was just dawning. We had arranged to stop over for another assembly but I had talked three times and that was enough. Elmer Sharp and I thought of our cornfields in the grass and we got up and dressed and silently stole away. The cars were not running so we cut out a couple of satchel sticks and walked the five miles to where "Henry" was ready to bear us on the wings of the wind home.

We got breakfast at Weston. We stocked up for lunch at Buckhannon. Ate lunch at the battle ground of Rich Mountain, of which more anon, and up through the broad Tygarts Valley where corn-working was going on at a great rate, and where the women were working in the fields. It showed that woman as of old in the pioneer days can rise to the occasion.

And having been invited to the camp so many times before, may I not invite myself back again?

CHAPTER V

Indian Relics. How to make your own Arrow Heads. Dynamic Force in use of Bow and Arrow. The Conchoidal Fracture

The editor of the "Fayette Tribune" refers to me an article in the "Atlantic" by Mr. Charles D. Stewart, on the subject, "The Arrow Maker," and a review of the same in the "Boston Transcript." I was glad to get this commission because I have definite, fixed ideas on the subject. The articles are interesting. Mr. Stewart reveals the method by which the ancient Indians made the stone arrow head. It seems that he called on an antiquarian who made an arrow head for him in eleven minutes and left him gasping with wonder. The arrow maker took a bit of stone and a bone stylus and fashioned the arrow head. I am inclined to think that the antiquarian was not altogether open and fair with the scribe

for I consider it no great matter to shape an arrow head and I place it for mechanical ingenuity and skill along with the sharpening of a tooth pick or the cutting out of a paper doll.

The writer in the "Boston Transcript" catches up the ball of ecstacy and throws it on. "It is an article of discovery, of revelation," he says. "It unfolds in a most surprising manner the way in which the pre-Columbian Indians made arrow-heads, spear heads, and other cutting missiles and implements of flint, obsidian, quartzite, jasper and other hard substances. Their method of work was long a mystery. Nobody seems to have found out in the early explorations."

If he had been informed this statement would have read that nobody found out prior to Captain John Smith, who is the earliest observer to set down in writing in our language the method described by these space writers.

The only process discussed by them is that of pressure by which the rudest weapons were fashioned, and they probably do not know that a sure-enough discussion can be waged on the subject of pressure versus percussion.

When the mail brought me this much needed inspiration for a space filler, I went to work methodically to getting ready for this sitting. I went down to the garden and commenced to hoe the vegetables, knowing full well that I had to do this as part of the daily task, and that I could count on picking up an arrow head, and in a few minutes I had found a fair specimen, and then I chose a bit of flint from the many pieces lying about and adjourned the garden work for a few minutes. I took a tooth brush that had outlived its usefulness and broke the handle off and with a file sharpened the point, and commenced to chip it into shape and in a short time it became an arrow head. Then I put them on a card to mail to the Fayette editor for his observation.

I have come to the conclusion that the finding of arrow heads on the surface of the earth is about such a gift as the ability to distinguish a four leafed clover. There is no doubt that it is a trained eye in addition to the gift in both cases. Those who pick up arrow heads learn to look for the fluted edges that indicate man's handiwork, and the finder knows by that whether it has had a history or not. For with us there is always to be found any number of pieces of flint about the same size that have not been fashioned by man.

I can average about fifty arrow heads a year in my garden that are good enough to keep, and I always pick them up, and count that day lost in the garden whose lowly setting sun finds me without a new one. The housekeeper does not value them. They are cultch to her.

I remember one time I showed off. It was early in the spring of the year. Some one was at the house and we were discussing Indian relics, and it occurred to me that it would be a good time to find some arrow-heads that had been exposed on the bare earth by the storms of the winter, and we adjourned to the garden and I picked up eight and the friend none. An average of one a day is about what the work in the garden nets in the summer time when the fight with the weeds is on.

I feel sure that where I live was the home of an arrow maker on account of the unworked fragments that are lying around. A large number of these are too small and thin to make an arrow head and they probably represent the chips incident to the work, but there are any number of larger specimens and without exception they have strong veins of white quartz in them, denoting perhaps that this quartz, did not lend itself to the work, not breaking right.

Flint will break off in minute shells leaving little hollows and the workman using pressure works from the edge in. The fine particles fly about in a dangerous manner to the eyes and care should be taken not to be injured thereby. But the most common objection to the trade is that they cut the thumbs, like glass, and sharp edges cause the blood to flow, therefore it is an art that can best be exercised by putting on a pair of buckskin gloves. The man in Wisconsin had a grooved oak board that he used, according to the magazine article that we are discussing, and he showed that he had gone through the bloody thumb process. It is a pity that artists have to wear buckskin gloves for this work, otherwise they could carry the spelican and a bit of flint about with them and work at it in the moving picture shows and other places like a lady with her knitting. Summer boarders could sit in a rocking chair on the hotel porch and make arrow heads to while away the idle hours.

It is the conchoidal fracture that does it. That is the tendency of breaking off in shell like particles, present in glass and hard stone.

The attention of Mr. Stewart is called to the account of Captain John Smith in regard to the Virginia Indians: "His arrow head he quickly maketh with a little bone which he weareth at his bracept, of a splint of stone or glass, in the form of a heart and these they glue to the end of their arrows. With the sinews of deer and the tops of a deer's horns boiled to jelly they make a glue which will not dissolve in cold water."

The glass referred to was volcanic glass no doubt as there was no such thing as the glass that we know prior to the time of Captain John Smith in America.

At this point I want to take up the local tradition that arrow heads were made by heat and water. This persists in these mountains and I was raised in the belief that it was the true method and many years ago I tried it and got no results. The old men told us that the Indian heated the stone and then put a drop of water on it from a straw and this caused the shell like depressions. But in the light of my own experience I have come to the conclusion that there is no reason why this cumbersome manner of manufacture should be employed, even if it were possible to work flint that way.

I think that it may be stated that the crude way to shape an arrowhead is by pressure by something equivalent to a husking peg. That for common garden variety of points this is the method for what might be called a homemade arrow. None other was needed. But when it comes to those works of art that shine like jewels such as are to be found in every collection, then the antiquarian is forced to the conclusion that they

were not formed in this way, and that is what brings up the third branch of this matter, and that is the percussion question.

Probably the most valuable item of property known to the race prior to its degeneration by the association with the conquering race of white men, was some examples of the work of the artists in stone. There were knives that compared in value with the finest diamonds of the white race.

These stone artists were recognized as a privileged and superior class of citizens. They could pass through the enemy without being halted or questioned, and without any danger for they were Arrow Makers. I like to think that the place I live is the site of the home of an Arrow Maker. These adepts were chosen and elected by the tribe for their skill, and it was a sort of academy that they formed.

The workman sought the material far and wide. There is a great flint quarry in Crabbottom, Highland County, Virginia, where the flint was quarried and carried all over the country. The workman first reduced the large blocks of flint to fragments by a stone hammer, and the parts assorted for the implements suggested by their shape. The master-workman seated himself upon the ground and laid a flake on the palm of his left hand holding it firmly with one or more fingers. In his right hand was the chisel or punch. This was often the enamel of the teeth of animals; sometimes of a very hard stone; and there is evidence that the American Indian knew how to temper copper to a hardness not known today. In front of the arrow-maker was seated his helper or striker. The point of the stylus was placed on some slight projection of the flint and the striker gave it a slight blow with a mallet of very hard wood, and the flint was flaked off under the chisel. The secret was in placing the point of the punch and striking with a rebounding blow and the yielding of the palm that held the piece of stone.

It is only by allowing for the two methods that the difference in the marks of the specimens can be accounted for.

If necessary I could go into these technical questions at great length, but I want to take up some more phases of the use of arrows by the Indians.

There is one phase of the use of arrows that has never been accounted for and that is the force by which the missile could be propelled. If a high powered gun is placed in a vise and fired, the bullet will travel with the same force exactly as if the rifle were pointed and fired by hand.

But if a bow and arrow were used in the vise, the arrow would be propelled with a feeble and insufficient force and the weapon would be useless. In the hands of an Indian bowman however, this arrow attains the speed of a bullet and is effective to a distance of two hundred yards and could be used with precision at that distance, and that is farther than a rifle can be made effective in the hands of a common marksman. It is a long drive with a golf ball. There is some sort of dynamic force that the Indians of ancient times were able to impart to their arrows as if they threw their very souls into the flight of the arrow, and this could be taught and acquired. The secret is wholly lost and gone now. There is no doubt that there have been many exaggerations in regard to the force

that an arrow could be propelled, but it is certainly true that an arrow could be shot entirely through the body of a buffalo.

Col. James Smith, who spent a number of years in captivity among the Indians of the Ohio Valley, speaks of going hunting one winter when the food in the wigwams ran very low. After travelling for some days they came to a large elm tree that showed scratches on the bark indicating that bears had climbed it, and forty feet up was a hole in the tree large enough to admit a bear. The Indian hunter with Smith climbed up the tree and took with him a pole on which he had tied some dry rotted wood and bark. When he got near to the hole he set the wood and bark on fire and put it in the hole in the tree and presently heard a bear snuff, and he then came down the tree in a great hurry. But it was sometime before the bear came out of the hole and the Indian shot it behind the shoulder with an arrow. He shot but once and directed Smith not to shoot, and presently the bear fell to the ground dead.

The Spaniards reported that the arrows of the Indians would penetrate the armor of the soldiers. Explorers agree that these arrows were effective for the biggest game known to the American continent. And it is no doubt true that while the Indians could shoot at considerable distance, they were very expert in crawling close to game and took no chances on a long shot if they could get close in.

One explorer says that he has seen arrows imbedded in oak trees to the depth of eight inches.

Beverly, one of the oldest writers on the Virginia Indians, says that they made their bows of locust wood and that sounds reasonable to those who know what this region affords in the way of bow-timber. The bow was about forty-eight inches in length and the string was buckskin, deer sinews, or twisted gut. The bows were kept unbent except when in actual use.

Every collector of arrow heads has specimens so small and well made that he wonders how they could have been used to tip arrows, and as a matter of fact, it is pretty certain that they were never used with the bow and arrow. They were for blow guns, and used mainly by boys in hunting small game. The arrow point has on it a bit of cotton or wool from the thistle, when used, and is blown through a hollow reed or bit of cane eight or nine feet long, and is good for bird or a grey squirrel up to about sixty feet, which just about represents the range of the modern cheap shot gun in the hands of the modern boy.

But the Indians were quick to abandon the use of the bow and arrow and they took to the rifle and the expert bowmen all passed many generations ago. But they say that on the Indian reservations, and about the towns in the west, you may happen on a stray Indian who will break up a beer bottle and make an arrow head for you out of glass while you wait.

When an Indian warrior was shot with an arrow and was brought in still living and required treatment for the wound it was the act of a numbskull to withdraw it. You can almost imagine the wise old Indians discussing a case where a member of the tribe had died because some ill

advised and well meaning friend had drawn the arrow out. The arrow must be pushed through to the other side of the body, otherwise the arrow point will pull off and be left in the wound and cause the death of the patient.

The Boston Transcript is in transports over the "rescue of one of the Indian arts." It is as though boys had ceased for a time to make pop guns and then some young visitor had restored that art to all its pristine glory and noise.

The history of the world is partly written in these stone relics. They are the only indestructible evidence of man's progress, and when he had progressed far enough he ceased to make an everlasting record. The arrow heads are pretty much the same the world over. The stone implements have been found as much as thirty feet below the surface of the earth and are sure evidence of intelligent man for as many years as any one cares to fix it.

In Germany they are called thunder stones from the fact that they are so much more readily found after a summer thunder storm on freshly cultivated land, the rain having washed away the mould from around them.

In Scotland and Ireland, they are called elf arrows, and the belief prevails that they are still fired from the air by elves and that they are of supernatural origin. If a cow beast is curiously affected it is believed that they have been shot with an elf arrow and they say that a horse-doctor sometimes will come and run his hand over the hide and find the arrow which he then boils in water with other ingredients and drenches the sick animal and cures it.

There the belief is to the effect that though it is not unusual to find these elf arrows that it is always by chance, and that if a search is made for them, that they are never found. This I have disproved to a certain extent, though I have friends and acquaintances who are more than ready to believe this part of the legends.

And there is the belief in the old country that an arrow head set in precious metal and worn about the person is a talisman against misfortune.

Some years ago I picked out three specimens and had the jeweler make breastpins out of them and gave them to the family, at the expense of four dollars each, not having done very much for them prior to that time. They were thankful but not noisy about them, and do not wear them with any great degree of regularity but every now and then some girl will send in a request for one, and as far as I am informed they have proven to be fairly satisfactory as amulets and charms. The little goldened arrow-head that keeps the child from harm.

I see no objection to making arrow-heads, there being no protecting patent, but we may be drawing a smear over the page of history, and some day experts may be required to read the arrow-heads aright.